Upgrading Platform **LSF**® on UNIX

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Version 5.0
Platform Computing

Comments to: doc@platform.com

Contents

Platform™

Which Upgrade Steps to Use

Use this document to upgrade your Platform **LSF**® installation ("LSF") to Version 5.0.

Use ONE of the following procedures to upgrade your cluster:

- "Upgrading an LSF Version 4.2 Cluster Installed with lsfinstall"
  Use this procedure if you used `lsfinstall` to install your cluster.
- "Migrating an Existing Cluster to the lsfinstall Directory Structure"
  Use this procedure to migrate an LSF cluster installed or upgraded with `lsfsetup` to the LSF directory structure supported by `lsfinstall` in LSF Version 4.2 and later.
- "Upgrading LSF and Maintaining the Pre-4.2 Directory Structure"
  Use this procedure to upgrade a cluster installed with `lsfsetup` and keep the pre-4.2 directory structure.

CAUTION **The steps in the procedure "Upgrading LSF and Maintaining the Pre-4.2 Directory Structure" will overwrite your existing binaries and customized command wrappers. Before using this procedure, back up your existing LSF_SERVERDIR, LSF_BINDIR, LSF_CONFDIR, LSF_LIBDIR, LSB_CONFDIR, and LSB_SHAREDIR according to the procedures at your site.**

Upgrading an LSF Version 4.2 Cluster Installed with lsfinstall

Use this procedure if you used `lsfinstall` to install your cluster.

If your cluster was installed or upgraded with `lsfsetup`, DO NOT use these steps. Use the steps in "Migrating an Existing Cluster to the lsfinstall Directory Structure".

Contents

Before you upgrade

1. You should inactivate all queues to make sure that no new jobs will be dispatched during the upgrade. After upgrading, remember to activate the queues again so pending jobs can be dispatched.
   - To inactivate all LSF queues, use the following command:
     ```
     % badmin qinact all
     ```
   - To reactivate all LSF queues after upgrading, use the following command:
     ```
     % badmin qact all
     ```
2. Before using this procedure, back up your existing LSF_CONFDIR, LSB_CONFDIR, and LSB_SHAREDIR according to the procedures at your site.
3. Get an LSF Version 5.0 license and create a license file (`license.dat`).

Download LSF distribution tar files

1. Log on to the LSF file server host as `root`.
2. FTP to `ftp.platform.com` and get the following files from the `/distrib/5.0/platform_lsf/` directory on `ftp.platform.com`:
   - LSF installation script tar file `lsf5.0_lsfinstall.tar.Z`
   - LSF distribution tar files for all host types you need

     Put the distribution tar files in the same directory as `lsf5.0_lsfinstall.tar.Z`.

   Download and read the LSF Version 5.0 `readme.html` and `release_notes.html` files for detailed steps for downloading LSF distribution tar files.
3. Uncompress and extract `lsf5.0_lsfinstall.tar.Z`:
   ```
   # zcat lsf5.0_lsfinstall.tar.Z | tar xvf -
   ```
   DO NOT extract the distribution tar files.

Use lsfinstall to upgrade LSF

1. Change to `lsf5.0_lsfinstall/`.
2. Read `lsf5.0_lsfinstall/install.config` and decide which installation variables you need to set.
3. Edit `lsf5.0_lsfinstall/install.config` to set the installation variables you need.
4. Follow the instructions in `lsf_unix_install_5.0.pdf` to run:

   ```
   # ./lsfinstall -f install.config
   ```

   You must run `lsfinstall` as `root`.

Use hostsetup to set up LSF hosts

1. Follow the steps in `lsf5.0_lsfinstall/lsf_getting_started.html` to set up your LSF hosts (`hostsetup`).
   a. Log on to each LSF server host as `root`. Start with the LSF master host.
   b. Run `hostsetup` on each LSF server host. For example:

      ```
      # cd /usr/share/lsf_5.0/5.0/install
      # ./hostsetup --top="/usr/share/lsf_5.0/"
      ```

      For complete `hostsetup` usage, enter `hostsetup -h`.
2. Set your LSF environment:
   - For `csh` or `tcsh`:

     ```
     % source LSF_TOP/conf/cshrc.lsf
     ```

   - For `sh`, `ksh`, or `bash`:

     ```
     $ . LSF_TOP/conf/profile.lsf
     ```
3. Follow the steps in `lsf5.0_lsfinstall/lsf_quick_admin.html` to update your license.
4. Use `lsfrestart` to restart LSF.
5. Follow the steps in `lsf5.0_lsfinstall/lsf_quick_admin.html` to verify that your upgraded cluster is operating correctly.
6. Use the following command to reactivate all LSF queues after upgrading:

   ```
   % badmin qact all
   ```
7. Have users run one of the LSF shell environment files to switch their LSF environment to the new cluster.

   Follow the steps in `lsf5.0_lsfinstall/lsf_quick_admin.html` for using `LSF_CONFDIR/cshrc.lsf` and `LSF_CONFDIR/profile.lsf` to set up the LSF environment for users.

   After the new cluster is up and running, users can start submitting jobs to it.

Upgrading LSF Parallel

After using `lsfinstall` to upgrade LSF, use the `lsfinstparallel` command to upgrade LSF Parallel.

Migrating an Existing Cluster to the lsfinstall Directory Structure

Use this procedure to migrate an LSF cluster installed or upgraded with `lsfsetup` to the LSF directory structure supported by `lsfinstall` in LSF Version 4.2 and later.

If your cluster was installed with lsfinstall, DO NOT use these steps. Use the steps in "Upgrading an LSF Version 4.2 Cluster Installed with lsfinstall" to upgrade your cluster.

Contents

Before you upgrade

1. You should inactivate all queues to make sure that no new jobs will be dispatched during the upgrade. After upgrading, remember to activate the queues again so pending jobs can be dispatched.
   - To inactivate all LSF queues, use the following command:
     ```
     % badmin qinact all
     ```
   - To reactivate all LSF queues after upgrading, use the following command:
     ```
     % badmin qact all
     ```
2. Before using this procedure, back up your existing LSF_CONFDIR, LSB_CONFDIR, and LSB_SHAREDIR according to the procedures at your site.
3. Get an LSF Version 5.0 license and create a license file (`license.dat`).

Download LSF distribution tar files

1. Log on to the LSF file server host as `root`.
2. FTP to `ftp.platform.com` and get the following files from the `/distrib/5.0/platform_lsf/` directory on `ftp.platform.com`:
   - LSF installation script tar file `lsf5.0_lsfinstall.tar.Z`
   - LSF distribution tar files for all host types you need

     Put the distribution tar files in the same directory as `lsf5.0_lsfinstall.tar.Z`.

   Download and read the LSF Version 5.0 `readme.html` and `release_notes.html` files for detailed steps for downloading LSF distribution tar files.
3. Uncompress and extract `lsf5.0_lsfinstall.tar.Z`:

   ```
   # zcat lsf5.0_lsfinstall.tar.Z | tar xvf -
   ```

   DO NOT extract the distribution tar files.

Use lsfinstall to install an independent LSF 5.0 cluster

1. Change to `lsf5.0_lsfinstall/`.
2. Read `lsf5.0_lsfinstall/install.config` and decide which installation variables you need to set.
3. Edit `lsf5.0_lsfinstall/install.config` to set the installation variables you need.

   If your cluster uses scripts that depend on having LSF_BINDIR, LSF_SERVERDIR, and LSF_LIBDIR configured in `lsf.conf`, set a value for UNIFORM_DIRECTORY_PATH to machine-dependent files in `lsf5.0_lsfinstall/install.config`.

   For example, if your current configuration is:

   - `LSF_BINDIR="/usr/share/lsf/bin"`
   - `LSF_SERVERDIR="/usr/share/lsf/etc"`
   - `LSF_LIBDIR="/usr/share/lsf/lib"`

   Then set:

   ```
   UNIFORM_DIRECTORY_PATH="/usr/share/lsf"
   ```
4. Follow the instructions in `lsf_unix_install_5.0.pdf` to run:

   ```
   # ./lsfinstall -f install.config
   ```

   You must run `lsfinstall` as `root`.

Use hostsetup to set up LSF hosts (Optional)

1. Follow the steps in `lsf5.0_lsfinstall/lsf_getting_started.html` to set up your LSF hosts (`hostsetup`).
   a. Log on to each LSF server host as `root`. Start with the LSF master host.
   b. Run `hostsetup` on each LSF server host. For example:

```
# cd /usr/share/lsf_5.0/5.0/install
# ./hostsetup --top="/usr/share/lsf_5.0/" --boot="y"
```

   For complete `hostsetup` usage, enter `hostsetup -h`.

2. Set your LSF environment:
   - For `csh` or `tcsh`:

```
% source LSF_TOP/conf/cshrc.lsf
```

   - For `sh`, `ksh`, or `bash`:

```
$ . LSF_TOP/conf/profile.lsf
```

3. Follow the steps in `lsf5.0_lsfinstall/lsf_quick_admin.html` to update your license.

Migrate the configuration files from existing cluster

LSF_CONFDIR

1. Add configuration parameters from existing `lsf.conf` to the new `lsf.conf`.
2. Merge the licensed features in the PRODUCTS line of the existing `lsf.cluster.`*`cluster_name`* into the new `lsf.cluster.`*`cluster_name`*.

   For example, if your existing `lsf.cluster.`*`cluster_name`* file has the the following PRODUCTS line:

```
PRODUCTS=LSF_Base LSF_Batch LSF_Make LSF_MultiCluster LSF_Parallel
```

   and your new file has the following PRODUCTS line:

```
PRODUCTS=LSF_Base LSF_Manager LSF_Sched_Fairshare LSF_Sched_Preemption
LSF_Sched_Resource_Reservation LSF_MultiCluster LSF_Parallel
```

   Remove the LSF_Batch feature, and add the `LSF_Make` feature to the PRODUCTS line in the new `lsf.cluster.`*`cluster_name`* file:

```
PRODUCTS=LSF_Base LSF_Manager LSF_Sched_Fairshare LSF_Sched_Preemption
LSF_Sched_Resource_Reservation LSF_Make LSF_MultiCluster LSF_Parallel
```

3. Copy the following files from the existing LSF_CONFDIR to the new LSF_CONFDIR:
   - `lsf.task`
   - `lsf.shared`
   - `hosts`, if it exists

LSB_CONFDIR

Copy the following files from the existing `LSB_CONFDIR/cluster_name/configdir/` to the new `LSB_CONFDIR/cluster_name/configdir/`:

- `lsb.hosts`
- `lsb.params`
- `lsb.queues`
- `lsb.users`

News files for LSF Version 5.0

Two new configuration files have been added for LSF Version 5.0:

- `LSB_CONFDIR/cluster_name/configdir/lsb.modules`
- `LSB_CONFDIR/cluster_name/configdir/lsb.resources` (optional file)

Migrate customized commands in LSF_BINDIR from existing cluster

Copy any customized LSF command wrappers to the new LSF_BINDIR.

For example:

```
# mv /usr/share/lsf_5.0/5.0/sparc-sol7-32/bin/bsub
/usr/share/lsf_5.0/5.0/sparc-sol7-32/bin/bsub.real

# cp /usr/share/lsf/4.1/sparc-sol7-32/bin/bsub
/usr/share/lsf_5.0/5.0/sparc-sol7-32/bin/bsub
```

See the *Platform LSF Reference* to verify that the command-line options of your command wrappers are still available.

Migrate external executables in LSF_SERVERDIR from existing cluster

Copy the following files in LSF_SERVERDIR of the existing cluster to the new LSF_SERVERDIR under LSF_TOP:

- `esub`
- `elim`
- `egroup`

Copy any other customized external executables to the new LSF_SERVERDIR.

For example:

```
# cp /usr/share/lsf/4.1/sparc-sol7-32/etc/eexec
/usr/share/lsf_5.0/5.0/sparc-sol7-32/etc/eexec

# cp /usr/share/lsf/4.1/sparc-sol7-32/etc/erestart
/usr/share/lsf_5.0/5.0/sparc-sol7-32/etc/erestart
```

Migrate integrations and special setup from existing cluster

- If you use any LSF integrations, you should reinstall all integration packages for LSF Version 5.0.
- Do any special setup procedures; for example, TRIX installation, as the final migration step.

Upgrading LSF Parallel

After using `lsfinstall` to upgrade LSF, use the `lsfinstparallel` command to upgrade LSF Parallel.

Bring the new cluster online

On the existing cluster

1. Use the command
   ```
   % badmin qclose all
   ```
   to close all queues.
2. Notify users to stop submitting jobs to the existing cluster.
3. After all jobs have finished running on the existing cluster, use `lsfshutdown` to shut down the cluster.

On the new cluster

1. Set your LSF environment:
   - For `csh` or `tcsh`:
     ```
     % source LSF_TOP/conf/cshrc.lsf
     ```
   - For `sh`, `ksh`, or `bash`:
     ```
     $ . LSF_TOP/conf/profile.lsf
     ```
2. Use `lsfstartup` to start the new cluster.
3. Use the following command to reactivate all LSF queues after upgrading:
   ```
   % badmin qact all
   ```
4. Have users run one of the LSF shell environment files to switch their LSF environment to the new cluster.

   Follow the steps in `lsf5.0_lsfinstall/lsf_quick_admin.html` for using `LSF_CONFDIR/cshrc.lsf` and `LSF_CONFDIR/profile.lsf` to set up the LSF environment for users.

   After the new cluster is up and running, users can start submitting jobs to it.

Upgrading LSF and Maintaining the Pre-4.2 Directory Structure

Use this procedure to upgrade a cluster installed with `lsfsetup` and keep the pre-4.2 directory structure.

If your cluster was installed with lsfinstall, DO NOT use these steps. Use the steps in "Upgrading an LSF Version 4.2 Cluster Installed with lsfinstall" to upgrade your cluster.

Contents

Before you upgrade

You should inactivate all queues to make sure that no new jobs will be dispatched during the upgrade. After upgrading, remember to activate the queues again so pending jobs can be dispatched.

- To inactivate all LSF queues, use the following command:

  ```
  % badmin qinact all
  ```

- To reactivate all LSF queues after upgrading, use the following command:

  ```
  % badmin qact all
  ```

1. Get an LSF Version 5.0 license and create a license file (`license.dat`).

CAUTION **The steps in this procedure will overwrite your existing binaries and customized command wrappers. Before using this procedure, back up your existing LSF_SERVERDIR, LSF_BINDIR, LSF_CONFDIR, LSF_LIBDIR, LSB_CONFDIR, and LSB_SHAREDIR according to the procedures at your site.**

Download LSF distribution tar files

1. Log on to the LSF file server host as `root`.
2. FTP to `ftp.platform.com` and get the following files from the `/distrib/5.0/platform_lsf/` directory on `ftp.platform.com`:
   - LSF installation script tar file `lsf5.0_lsfinstall.tar.Z`
   - LSF distribution tar files for all host types you need

     Put the distribution tar files in the same directory as `lsf5.0_lsfinstall.tar.Z`.

   Download and read the LSF Version 5.0 `readme.html` and `release_notes.html` files for detailed steps for downloading LSF distribution tar files.

3 Uncompress and extract `lsf5.0_lsfinstall.tar.Z`:

```
# zcat lsf5.0_lsfinstall.tar.Z | tar xvf -
```

DO NOT extract the distribution tar files.

Use lsfsetup to upgrade LSF

1 Log on to the LSF file server host as `root`.
2 Change to `lsf5.0_lsfinstall/scripts/`.
3 Run the `lsfsetup` script:

```
# ./lsfsetup
```

The `lsfsetup` main menu is displayed. The `Install.log` file is opened in the current working directory.

4 Choose option 1, Install LSF Products.
5 Choose option 3, Upgrade From a Previous Version.
6 Follow the prompts to upgrade your cluster.
7 Manually change your license file to an LSF Version 5.0 license
8 Use `lsfrestart` to restart all LSF daemons: `lim`, `res`, `sbatchd`, and `mbatchd`.

Upgrading hosts running AIX 4.2

If you have an LSF 4.*x* cluster with hosts running AIX 4.1 and AIX 4.2 or AIX 4.3 use the following steps to upgrade with `lsfsetup`:

1 Log on to the LSF file server host as `root`.
2 Change to `lsf5.0_lsfinstall/scripts/`.
3 Run the `lsfsetup` script:

```
# ./lsfsetup
```

The `lsfsetup` main menu is displayed. The `Install.log` file is opened in the current working directory.

4 Choose option 1, Install LSF Products.
5 Choose option 3, Upgrade From a Previous Version.
6 When prompted for host types to upgrade choose BOTH AIX 4.2 and AIX 4 to upgrade. `lsfsetup` will install AIX 4 and AIX 4.2 binaries, then exit.
7 Run `lsfsetup` again to do host setup:

```
# ./lsfsetup
```

8 Choose option 2, Set up LSF Hosts.
9 Enter all AIX hosts in your cluster.
10 Choose yes (y) to comment out the hosts that you entered.
11 Continue the normal host setup.
12 (Optional) Choose yes (y) to update the system startup script if you had it before.
13 Choose yes (y) for each host to update uniform directory path.
14 (Optional) Choose yes (y) for each host to update `/etc/lsf.conf` link.
15 Follow the remaining prompts to complete the upgrade.

After you upgrade

1. Check your `lsf.cluster.`*`cluster_name`* file. All AIX hosts were commented out and then were added back in again.
2. Check the uniform directory path to make sure it points to the correct new binaries:
   - For AIX 4.1 hosts, check that LSF_BINDIR, LSF_SERVERDIR, and LSF_LIBDIR point to the correct directories under `aix4`.
   - For AIX 4.2 and AIX 4.3 hosts, , check that LSF_BINDIR, LSF_SERVERDIR, and LSF_LIBDIR point to the correct directories under `aix4.2`.

Upgrading LSF Parallel

After using `lsfsetup` to upgrade LSF, use the `lsfinstparallel` command to upgrade LSF Parallel.

Compatibility Notes

License keys

A permanent LSF license allows only one FEATURE line for each LSF product or feature. If your license file is used by multiple LSF clusters, and you wish to upgrade just one cluster, you have to upgrade the licenses all at once. For example, a 5.0 FEATURE line for `lsf_base` replaces the 4.*x* FEATURE line for `lsf_base`. However, the LSF version 5.0 license is not fully compatible with LSF version 4.*x*. If you want to use one license file to run both 4.*x* and 5.0 clusters, the 4.*x* clusters require the `lsf_batch` feature, which is not included in the 5.0 license.

To make your license work for both versions of LSF, you must manually edit the 5.0 license file and append your 4.*x* FEATURE line for `lsf_batch`, and also any 4.*x* INCREMENT lines for `lsf_batch`.

After all your clusters have been upgraded to LSF Version 5.0, you can delete these `lsf_batch` lines from your license file. Always reconfigure the cluster after upgrading your license file.

LSF Job Accounting

To enable the LSF Job Accounting features, the `lsf_data` license feature must be enabled in the LSF license file and `LSF_Data` must be configured in the PRODUCTS line of the `lsf.cluster.`*`cluster_name`* file. This enables:

- `bhist` and `bacct` commands, and user applications to read the `lsb.events` and `lsb.acct` files
- `Unencryted lsb.events`
- `lsb.acct` files generation

If the `LSF_Data` license is not enabled:

- `lsb.acct` is not generated
- `bacct` command is not available
- `lsb.events` is encrypted, so 4.x `bhist` and user applications that use the `lsb_geteventrec()` and `lsb_puteventrec()` APIs cannot access it. Only the Version 5.0 `bhist` command can access the encrypted `lsb.events`.

Contact Platform support at `support@platform.com` for more information about the `LSF_Data` license.

Getting Technical Support

Contacting Platform

Contact Platform Computing or your LSF vendor for technical support. Use one of the following to contact Platform technical support:

Email support@platform.com

World Wide Web www.platform.com

Phone
- North America: +1 905 948 4297
- Europe: +44 1256 370 530
- Asia: +86 10 6238 1125

Toll-free phone 1-877-444-4LSF (+1 877 444 4573)

Mail
Platform Support
Platform Computing
3760 14th Avenue
Markham, Ontario
Canada L3R 3T7

When contacting Platform, please include the full name of your company.

We'd like to hear from you

If you find an error in any Platform documentation, or you have a suggestion for improving it, please let us know:

Email doc@platform.com

Mail
Information Development
Platform Computing
3760 14th Avenue
Markham, Ontario
Canada L3R 3T7

Be sure to tell us:

- The title of the manual you are commenting on
- The version of the product you are using
- The format of the manual (HTML or PDF)

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